Region of Niagara/ Association of Municipal Recycling Coordinators (AMRC)

Removal of Mercury Switches From Appliances - A Municipal Pilot Project

Great Lakes Binational Toxics Strategy
Spring Meeting

May 30, 2002

Regional Municipality of Niagara

- 12 area municipalities
- population 423,600
- approximately 170,000 households
- provides dedicated collection service and residential drop off locations for CFC bearing and other appliances
- handled approximately 900 tonnes of old appliances in 2001

AMRC

Non profit organization formed in 1987

- facilitates sharing of municipal waste reduction and recycling information and experience
- coordinates specialized workshops and seminars
- produces reports, manuals and other documents on specific waste management and waste diversion topics of interest to municipalities
- Represents over 95% of the municipalities in Ontario with recycling programs

1. Pilot Rationale

- *Ontario Municipal White Goods Collection and Mercury Switch Removal Survey & Report, March 2000*
- AMRC completed report for Environment Canada on the status of appliance recycling in Ontario
- Report found:
  - all municipalities in Ontario recycle the old appliances
  - no mercury devices were removed before recycling
  - approximately 150 kg of mercury entered the recycling stream through municipal programs in 1999

2. Pilot Overview

- Environment Canada provided funding to the AMRC/Region of Niagara for a nine-month pilot to study the removal of mercury devices from old appliances. The finished products included:
  - Final report to Environment Canada
  - a “How To” Manual
  - a demonstration video, “Removing Mercury Switches & Sensors from Old Appliances”

3. Pilot Objectives

- Characterization of:
  - The type, make and model of appliances that contain mercury switches
  - Time/motion studies studies
  - Labour, handling, transport, disposal cost, and;
  - The quantity of mercury diverted from improper disposal

4. Pilot Scope

- Activities
  - “Suspect” appliances (e.g., chest freezers, furnaces, gas appliances) set aside by contractor
  - Contractor employee instructed on locating and removing mercury bearing devices
  - Information on appliances most likely containing mercury devices provided to contractor - this information adapted from literature from State of Minnesota’s Office of Environmental Assistance, the Appliance Recycling Information Centre and Pollution Probe

4. Pilot Scope (cont'd)

- Disposal of Mercury Devices
  - Lab packed for pick up by the Region's household hazardous waste contractor

5. Study Results

- 1,314 white goods units were received
- 120 units (9%) contained mercury
- 117 devices found within the light assembly of the lid of chest freezers
- 1-2 minutes to locate a mercury switch in a freezer
- the other 3 devices found in old gas ranges
- 10 minutes to isolate and remove mercury bearing devices (pilot flame sensors) in gas ranges

5. Study Results - General

- Mercury switches are generally in good condition and pose no threat of leakage when handled during the pilot project
- No other mercury containing appliances were received. These include furnaces, pre-1970's washing machines and space heaters

6. Potential Issues

- Space - segregating the mercury containing items from other appliances
- Finding local expertise on appliances
- Curbside scavenging of appliances

7. General Conclusions

- clear picture of the extent of mercury containing switches and sensors in the appliance waste stream (9% of the total)
- Able to identify and target the appropriate appliances (make, model, type)
- Itemize costs - based on receiving 14 mercury containing devices/month, the estimated program costs are between $615 - $895 per year

Thinking Further...

- Regional Niagara Mercury Policy and Elimination Plan
- Niagara manages mercury through HHW appliance collection programs but currently has no comprehensive policy or plan to reduce or eliminate mercury from its operations
- proposed plan could be used as a template for other municipalities

- Step 1 - assessment of departmental activities for current mercury purchasing, handling/disposal practices and quantification of mercury inputs/outputs
- Assessment of services offered by the Region and potential external programs to remove mercury from circulation

- Step 2 - develop mercury pollution prevention plans for each department
- Step 3- develop a policy statement for Regional Council to consider

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- Modern Corporation